

Product Name **MyMathLab**

Course Name **Foundations of Mathematics**

Course Format **Hybrid: 50 percent face-to-face; one-hour required lab, fixed due dates**

Key Results Use of MyMathLab's Adaptive Study Plan, powered by Knewton, both decreases score deviation and improves student participation and confidence.

Materials in Use

Thinking Mathematically, Blitzer

Implementation

Diane Hollister, assistant professor, is an early adopter of MyMathLab's Adaptive Study Plan, powered by Knewton—a system of personalized learning that provides each student with exactly the content he or she needs. This targeted approach to teaching not only accelerates the learning process, but engages and motivates students in the process.

Hollister implemented MyMathLab Adaptive, powered by Knewton, in fall 2012 and encouraged, but did not require, use of its Study Plan. As a result, although anecdotal feedback was positive, actual usage of the feature varied. She spent the next semesters fine-tuning course settings and adjusting the implementation for optimal student outcomes. Today, use of the Study Plan is required and is the key component of a mastery point system on which her course is based.

All assessments automatically update a student's Study Plan and earn the student mastery points—indicators of their level of mastery and preparedness to progress to the next assessment. Students begin by doing homework. They have unlimited attempts and all learning aids are available. Harder questions, fewer attempts, and word problems earn students more points.

Students are then directed to the Study Plan, where they answer five Quiz Me questions designed to (1) prove their understanding of each objective, and (2) earn them more points. Hollister customizes the Quiz Me settings to offer a range of difficulty: one easy, three medium, and one hard question; and she adjusts the Study Plan mastery setting to 73 percent. Students must meet the mastery requirement in order to earn enough mastery points to take the corresponding tests.

Hollister also uses the Study Plan to help students prepare for tests. For this purpose, the mastery setting is 80 percent.

Students have one attempt on tests that may be proctored on campus or taken online. After each test, a student's Study Plan is updated so he or she may continue to close knowledge gaps before progressing to the final exam.

Final exams are taken on campus. Students have one attempt, are not allowed any learning aids, and have two hours to complete them.

Finally, Hollister takes advantage of the program's Mastery and Coverage Mismatch alert features. The Mismatch Mastery alert identifies when previously mastered subjects must be mastered again, thereby enabling Hollister to see when a student's understanding is waffling. The Coverage Mismatch alert identifies previously omitted objectives that are now recommended, which helps ensure course coverage remains consistent with test objectives.

Assessments

50 percent MyMathLab tests

25 percent MyMathLab final exam (proctored)

25 percent MyMathLab homework

Use of MyMathLab contributes 100 percent to each student's final course grade.

“I’m so glad to see students doing extra work, scoring higher on tests, and feeling more confident about their ability to do math.”

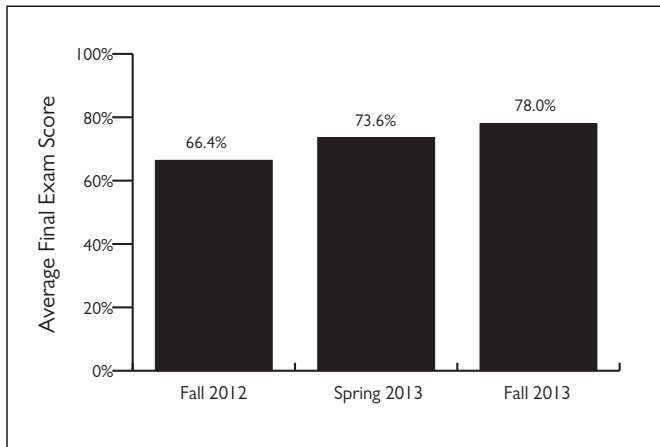


Figure 1. Foundations of Mathematics Average Final Exam Scores, Fall 2012–Fall 2013 (n=149)

Semester	Study Plan Grade	Test 1		Test 2	
		Mean	Std Dev	Mean	Std Dev
Fall 2013 Hybrid n=38	65.5%	82.1	24.6	83.7%	12.2
Spring 2014 Fully Online n=44	70.2%	86.7	14.6	85.0%	11.0

Table 1. Foundations of Mathematics Study Plan and Test Data, Fall 2013–Spring 2014

Results and Data

Hollister is pleased—she reports that since implementation of the Adaptive Study Plan, powered by Knewton, exam scores have steadily increased (figure 1) and the standard deviation between scores has decreased (table 1).

The Student Experience

Use of the adaptive learning features has a positive effect on students’ attitudes toward math. “They smile now,” says Hollister. “They aren’t as afraid of math—the low stakes assignments in MyMathLab help ease their anxiety.”

Most important, students recognize the value of MyMathLab Adaptive, powered by Knewton:

- “I like that I can practice over and over on only what I need to work on.”
- “It drives me nuts trying to meet the mastery level so I can take my test. But then I do better, so it’s worth it!”
- “I appreciate the practice, and I’m not as afraid of math now. I know what I do and don’t know.”

Hollister emphasizes the importance of introducing students to the Study Plan first thing in the semester and providing them with the tools to best use it. “I take the time to show students how this Study Plan personalizes their results and why using it is important,” she says. “This cuts down on a lot of potential frustration since this is a different way of using MyMathLab than they’re used to.”

In addition, each student receives a guide outlining the mastery point system and how many points they need in order to earn an A, B, or C in the course. To further help students navigate the course and Study Plan format, Hollister is creating a video.

Conclusion

Getting the course to its optimum format has been a process. “It’s important that the Adaptive Study Plan is set up correctly,” says Hollister. “Tweaking and analyzing is a very important part of the process, as is taking the time to fully explain to both students and faculty how and why to properly use it.”

The effort is worth it and Hollister recommends MyMathLab Adaptive, powered by Knewton, to others. “It works beautifully,” she says. “For instructors interested in flipping their courses, the Adaptive Study Plan is an invaluable tool—the Mismatch alerts provide the kind of just-in-time data that helps instructors fine-tune class presentations to exactly what students need to mastery course material and succeed in the course.”

*Submitted by Diane Hollister, Assistant Professor
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